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ENTOMOLOGICAL NEWS

VOL. LIX JUNE, 1948 No. 6

A Re-Definition of the Tribe Edrotini (Coleoptera: Tenebrionidae)

By IRA LA RIVERS, University of California, Berkeley

Through the kindness of anthorities of the British Museum, I recently had an opportunity to see the type of Champion's *Pimeliopsis*. Since some recent additions have been made in *Edrotes*, this seems an opportune time to re-define the tribe.

In his major revision of 1870, Dr. George H. Horn listed *Edrotes* in the tribe *Epiphysini* with the type genus, *Epiphysa*, from south Africa. The same arrangement was followed in the Le Conte-and-Horn 1883 "Classification." In 1892, George C. Champion described the new genus and species *Pimeliopsis granulata* with the notation:

"The above generic name is proposed for a single species from Western Mexico, for the discovery of which we are indebted to Mr. H. H. Smith. *Pimeliopsis* belongs to the tribe 'Epiphysides' of Lacordaire, and is allied to the North-American genus *Edrotes*, from which it differs in the form of the head and other particulars. The single species has very much the facies of a small *Pimelia*." The two specimens came from "MEXICO, Venta de Zopilote in Guerrero 2800 feet."

The first use of the tribe *Edrotini* to include only *Edrotes* and *Pimeliopsis* can be ascribed to Thomas L. Casey, who introduced the term in his comprehensive 1907 report. He characterized and keyed the two genera as well as 14 species of *Edrotes*, 10 of which he described as new, having once previously (1890) added two species to the basic two provided by Say and Le Conte; he wrote that *Pimeliopsis* was "unknown to me in nature." Perhaps this was fortunate. Hans Gebien catalogued the two gen-

era in the subfamily Edrotinae in 1911, later returning to the more favored tribal concept for the two (1937).

The generic components of *Edrotini* may be modernly characterized as follows:

Anterior prothoracic angles attenuate-spinous (*Edrotes*) to blunt-spinose (*Pimeliopsis*), extending anteriad to leading margins of eyes (*Edrotes*) or not quite to middle of eyes (*Pimeliopsis*); prothoracic and elytral dorsa dissimilar (prothorax thickly-beset with sharply-defined pits, elytra with numerous, sharp tuberculations, more-or-less longitudinally-arranged = *Pimeliopsis*) to similar (*Edrotes*); vestiture of short, golden hairs, each arising posteriad of a tubercle (*Pimeliopsis*), or of either long flying hairs or short, flattened, scale-like hairs (*Edrotes*); antennae stout, short, not much more than attaining posterior prothoracic angles when stretched caudad (*Pimeliopsis*) to slender, long, and distinctly surpassing hind prothoracic angles when stretched caudad (*Edrotes*); viewed laterad, prothorax and elytra on the same plane (*Pimeliopsis*) or prothorax on a much lower plane than elytra (*Edrotes*); epistoma hanging down over labrum, terminating in a definite tooth situated on the median line, the entire epistomal shelf extending laterad and forming prominent shelves over the antennal insertions (*Pimeliopsis*) to epistoma not covering labrum, truncate (not toothed) in front, not forming a continuous shelf across front of head (*Edrotes*); form globose (*Edrotes*) to distinctly elongate (*Pimeliopsis*); viewed dorsad, general form subparallel, anterior end appearing abruptly truncate (*Pimeliopsis*) or general form distinctly attenuate cephalad, appearing to come to a point (*Edrotes*).

Specific components of the tribe are:

Pimeliopsis granulata Champion 1892—foretibial distal spines not extending beyond end of first tarsal segment

Edrotes—foretibial spines subequal to first two tarsal segments combined

arens La Rivers 1947—dorsal vestiture short, scale-like

—dorsal vestiture long (= 'flying hairs')

ventricosus Le Conte 1851—dorsum minutely-tuberculate, shining

rotundus (Say) 1824—dorsum coarsely-impunctate, dull.

Although the fifteen specific names Casey applied to *Edrotes* have been synonymized (La Rivers 1947), as well as the three erected by Blaisdell, it is certain some of these will have an application on the subspecific level when enough material is on hand to determine the extent and nature of geographic variability in the genus. Problems in polytypism are especially prevalent in such genera of my experience which inhabit the high, broken intermontane West; the area, particularly of the Great Basin, exhibits not only the normal horizontal gradients but multitudinous local vertical gradients which, by virtue of aridity, greatly multiply and localize microënvironments. Such terrestrial animals as *Eleodes, Edrotes, Trogloderus* and *Stenopelmatus* all exhibit, in our present stage of knowledge, an as yet bewildering array of unsegregated variants, about which not enough is known to produce any kind of recognizable distributional pattern; only the clines produced by latitudinal gradients are yet obvious. Both *Eleodes* and *Edrotes* have been the objects of an excessive amount of taxonomic refinement-of-detail, particularly the former, all emphasis being upon morphological minutiae with no attempt to evaluate populations so-limited in terms of ecologic response, limits of genetic variability or relations to adjacent populations.

Genus **PIMELIOPSIS** Champion

Pimeliopsis Champion 1892, Biol. Centr.-Amer. Coleop. 4(1): 477. Casey, 1907, Proc. Wash. Acad. Sci. 9:450. Gebien, 1937, Mus. Ent. "Pietra Rossi" 15(2): 144. Blackwelder, 1945, U.S.N.M. Bull. 185(3): 514.

Pimeliopsis granulata Champion

P. granulata Champion 1892, Biol. Centr.-Amer. Coleop. 4(1): 477. Casey, 1907, Proc. Wash. Acad. Sci. 9:450. Gebien, 1937, Mus. Ent. "Pietra Rossi" 15(2): 144. Blackwelder, 1945, U.S.N.M. Bull. 185(3): 514.

This little-known species is extremely rare in collections, due possibly to the exigencies of collecting, perhaps to a real scarcity in nature. At any rate, practically all citations to it in the litera-

ture since its description are merely catalog listings. To my knowledge, nothing is known of its biology. The Hoogstraal expeditions to Michoacan, adjacent to Guerrero, collected widely and successfully in the Tenebrionidae, but were never able to locate *Pimeliopsis,* although no specific efforts were made in its particular behalf. In fact, not enough is known of the species' habits to give a clue as to what type of specialized collecting would be most successful in locating it, if such collecting is needed.

Genus **EDROTES** Le Conte

Pimelia, Kirby, 1837, Fauna Boreali-Amer. 4: 232. Blaisdell, 1909, U.S.N.M. Bull. 63: 3.

Edrotes Le Conte 1851, Ann. Lyc. Nat. Hist. N. Y. 5: 140–141. Blaisdell, 1909, U.S.N.M. Bull. 63: 3. Leng, 1920, Cat. Coleop.: 222. Leng & Mutchler, 1927, Suppl. Cat. Coleop.: 34. Gebien, 1937, Mus. Ent. "Pietra Rossi" 15(2): 144. Blackwelder, 1945, U.S.N.M. Bull. 185(3): 514. La Rivers, 1947, Ann. Ent. Soc. Amer. 40(2): 318.

The generic and specific citations here given are additions to those I recently listed (1947).

Subgenus **Edrotes** Le Conte

Subg. *Edrotes,* La Rivers, 1947, Ann. Ent. Soc. Amer. 40(2): 321.

Edrotes ventricosus Le Conte

E. ventricosus Le Conte 1851, Ann. Lyc. Nat. Hist. N. Y. 5: 141. Leng, 1920, Cat. Coleop.: 222. Leng & Mutchler, 1927, Suppl. Cat. Coleop.: 34. Gebien, 1937, Mus. Ent. "Pietra Rossi" 15(2): 144. Blackwelder, 1945, U.S.N.M. Bull. 185(3): 514. La Rivers, 1947, Ann. Ent. Soc. Amer. 40(2): 321.

Since my synopsis (1947) I have seen a specimen of *E. ventricosus* from the Kenneth M. Fender collection, taken by Mr. Fender in eastern Oregon. While its presence in Oregon had been suspected, and possibly as far north as eastern Washington, this is the first specimen I have seen from the area.

Edrotes rotundus (Say)

Pimelia rotunda Say 1824, Jour. Acad. Nat. Sci. Phila. 3: 251–252. Kirby, 1837, Fauna Boreali-Amer. 4: 232. Blaisdell, 1909, U.S.N.M. Bull. 63: 3.

Edrotes rotundus, Leng, 1920, Cat. Coleop.: 222. Gebien, 1937, Mus. Ent. "Pietra Rossi" 15(2): 144. Blackwelder, 1945, U.S.N.M. Bull. 185(3): 514 (as the synonym *E. desertus* Blaisdell 1943). La Rivers, 1947, Ann. Ent. Soc. Amer. 40(2): 325.

Subgenus **Odrotes** La Rivers

Subg. *Odrotes* La Rivers 1947, Ann. Ent. Soc. Amer. 40(2): 320.

Edrotes arens La Rivers

E. arens La Rivers 1947, Ann. Ent. Soc. Amer. 40(2): 320.

Data on size of the species were omitted from the recent review (1947) in which it was described, and are here included: length 7 mm., width 5 mm.

REFERENCES

BLACKWELDER, R. E. 1945. Checklist of the coleopterous insects of Mexico, Central America, the West Indies and South America. U.S.N.M. Bull. 185 (3): 343–550.

BLAISDELL, F. E., SR. 1909. A monographic revision of the Coleoptera belonging to the Tenebrionide tribe Eleodiini inhabiting the United States, Lower California and adjacent islands. U.S.N.M. Bull. 63: xi + 524.

CASEY, T. L. 1907. A revision of the American components of the tenebrionid subfamily Tentyriinae. Proc. Wash. Acad. Sci. 9: 275–522.

CHAMPION, G. C. 1892. Tenebrionidae. Biol. Cent.-Amer. Coleoptera 4 (1): xxxii + 572.

GEBIEN, H. 1937. Katalog der Tenebrioniden (Coleoptera Heteromera). Teil I. Museo Entomologico "Pietro Rossi," pp. 1–381.

LA RIVERS, I. 1947. A synopsis of the genus Edrotes (Coleoptera: Tenebrionidae). Ann. Ent. Soc. Amer. 40 (2): 318–328.

Contributions to the Knowledge of Chinese Coccinellidae. IX. On a New Serphid Parasite of the Larva of Epilachna admirabilis in Kunming [1]

By C. L. Liu, Division of Entomology, Institute of Agricultural Research, Tsing Hua University

The first specimen of this new parasite to come under observation emerged from a second or early third instar larva of *Epilachna admirabilis* Crotch fifteen days after its collection on August 23, 1941, in the environs of Kunming (Wang Chia Chiao, a village northwest of the city). The extraordinary position assumed by the parasite in relation to its host at once attracted attention, and subsequent search was made over a number of years for additional specimens. These are not rare if the collecting of parasitized hosts is made at the right season. When specimens were sent to Dr. C. F. W. Muesebeck for identification, the writer was informed that the parasite represented a new species of an apparently undescribed genus. Upon the request of the writer, Dr. Muesebeck kindly consented to prepare a description of the species to be published at a later date.

A parasitized host may be readily recognized by a slight bulge near the middle of the posterior half of the venter. This prominence continues to enlarge until the host integument is ruptured to let through the head and thorax of the parasite pupa. The protruding pupa is so oriented to the host that the dorsum of its abdomen is in contact with the interior of the dorsal integument of the host, while the exposed cephalothoracic region has its ventral side lying against the exterior of the host venter. The cephalothoracic portion is bent at an angle with the abdomen at the junction of these regions, so that the parasite head is directed toward that of its host. With further development, when the greater part of the parasite abdomen becomes exposed, its head may be directly over the hypognathous mouthparts of

[1] Paper No. 33 of the Division of Entomology.

the host. The long slender antennae extend in a graceful curve from the head along the sides to the posterior margin of the third abdominal segment. When the imago effects its departure, its pupal skin is left more or less intact within the emptied host.

The exceptional position assumed by this species, during its pupal development, in relation to its host is extraordinary but not unique, for other serphids (e.g., *Exallonyx philonthiphagous* Williams in Hawaii) have been observed to adopt a similar posture. In the present case, at least, a probable explanation of this situation is forthcoming from the fact that the parasite, in spite of its size which would lead one to expect a delay in its pupal transformation until the host larva has attained maturity, perfers the third instar and even, in some cases, the second. The slight differential between the size of the parasite and that of its host makes necessary the rupturing of the host integument to permit of further development. Also the fact that the mature larva directs its head caudad of the host may be viewed as an adaptation which obviates possible injury by the host mandibles and legs while the protruded pupa is still soft and vulnerable.

Slender and graceful, the adult parasite is very agile after eclosion from its pupal skin. It may be kept alive on a diet of honey and water, and in one case it lived from October 7 to November 24, 1945, a total of forty-eight days. It may be noted that in this particular case the sugar content of its food was considerably increased after October 21 when other adults began to show signs of not surviving November, which was also the experience in 1941.

Such is their oviposition urge that two parasites were observed to attempt oviposition in their dead hosts. So when several parasites had issued, experimental oviposition was tried with the view to working out the life history. Unfortunately *E. admirabilis* does not readily lend itself to laboratory rearing, and, as a consequence, four collected larvae were used. From these three parasites developed, but of course the possibility of previous oviposition was not excluded. Later seventeen laboratory bred larvae of *Epilachna vigintioctopunctata* F. (ten third

and seven fourth instars) were exposed. In no case did any parasite develop, although one parasite was seen to insert her ovipositor for over ten minutes into a fourth instar larva and another followed with a brief stab into the same host. On the same food plant, *Clematis Peterae* H.-M., lives another species, *Epilachna hauseri* Mader, but from it no parasite of this species has been reared. This probably indicates a high specificity of this parasite, which may, in turn, account for its rather infrequent occurrence. It may be added that so far as our experience indicates, Wang Chia Chiao seems to be the only fruitful collecting ground, although a few have also been recovered from hosts collected from the village Luh Liang Hsiang.

The host shows first signs of parasitization by a considerable period of fasting, followed by a general darkening and shriveling of the body. At this time the bulge on its venter becomes discernible and soon the integument is ruptured by the protruding pupa. The host invariably dies and the solitary parasite issues in time. Since the beetle feeds on a plant of some slight value as a medicinal herb, this parasite may be considered beneficial from that point of view. The interesting point, however, is that this is one of the rarer cases in which the serphid attacks a phytophagous host.

Although the adult parasite was found to have emerged on February 5, 1945, our repeated experience definitely indicates that the wasps appear much later in the season. Emergence records both for the field and laboratory, covering a period from September 1 to October 23, show a maximum issuance during the forty days shared between these months. Although the epilachnine beetle can be collected throughout the year, a third instar larva was found in January, mating occurred in February and eggs were laid in March, the larvae are abundant only during the months of July to October. This may have something to do with the late appearance of the parasite. But whether it tides over the intervening period by utilizing an alternate host or is it able to locate the very scarce winter larvae must await future elucidation, as the present note must be concluded with the impending departure of the writer from Kunming.

Two New Species of Neotropical Scarabaeidae (Coleoptera)

By MARK ROBINSON, Springfield, Pennsylvania

Trichillum pilosus new species

This hairy species differs from *bradyporum* Boucomont by its larger size, differently shaped clypeus and by the closeness of the coarse punctures on the head and pronotum. It does not appear to be near any other species in this genus.

Orbicular; piceous, the legs dark reddish; shining. Each puncture on the head, pronotum and elytral intervals bears a rather long, yellowish-brown hair.

The clypeus is quadridentate, the two inner teeth are parallel-sided to the acute tip while the outer teeth are triangular in outline and not as long as the inner teeth. The edges of the clypeus and head are narrowly raised. The eyes are ovate in outline. Entire surface of clypeus and head coarsely punctured, the punctures being separated by about twice their diameter.

Thorax widest about the middle. Near the lateral margins is a raised, rounded knob that is black in color and not as closely punctured as the surrounding area. The coarse punctures of the pronotum are separated by about half their diameter laterally and about twice their diameter medially.

The elytral striae are narrow and shallow, with regularly spaced, crenate punctures. The intervals are barely convex with a row of coarse punctures alongside of each stria. The sixth interval is raised into a rounded ridge from the humeri to the apical edge. The other intervals are also raised into a rounded ridge near the apical edge.

The anterior tibia is triangular in outline, tridentate with the teeth becoming successively smaller from the anterior one. The middle and posterior femora and tibiae are coarsely, setigerously punctured. The ventral sutures are obliterated medially.

Length, 3.1 mm.; breadth, 2.1 mm.

Type.—? sex; Barro Colorado Island, CANAL ZONE, November 22–24, 1944 (R. H. Arnett, Jr.). In the collection of Cornell University, number 2409.

Paratype.—? sex; with the same data as the type. In the collection of the author.

Anomala chapini new species

This species is probably most closely allied to *popayana* Ohaus. The coarser and denser punctation throughout plus the difference in color should separate *chapini* from the older species.

I take a great deal of pleasure in naming this species after my good friend Dr. Edward A. Chapin who is always so helpful in furthering one's studies in Entomology.

Ovate; shining; black with a reddish tint on the head, thorax and underparts. The elytra are ferruginous with an irregular, transverse black band across the middle. The sutural costae, humeri, outer margin and the apical half of the first, second and third costae are black.

Clypeus truncate in front with the angles broadly rounded. The clypeal edge is well reflexed. The surface of the clypeus is scabrous with coarse punctures intermixed. The clypeal suture is scarcely evident. Near the clypeal suture the frons is coarsely sometimes confluently punctured. On the vertex the coarse punctures are separated from one to two times their diameter.

Thorax widest about the middle. The side margins converge rather strongly from this median area to the anterior angles. The side margins in the posterior half are gently converging to the well rounded hind angles. The posterior marginal line is interrupted medially. There are several long hairs arising along the pronotal side margins. The surface of the pronotum is coarsely punctured. These punctures are separated from half to once their own diameter laterally; on the disk they are separated from two to four times their diameter. Each puncture on the pronotum bears a very short, light colored hair.

The elytral puctures are coarse and shallow, each bearing a very short, light colored hair. The costae are practically impunctate. The sutural interval is confusedly punctured while

the other intervals have a single row of punctures. The scutellum is punctured about the same as the thoracic disk.

The pygidium is very roughly, scabrously sculptured with a few light colored, short hairs scattered over the surface. The anterior tibia is bidentate. Metasternum is not protuberant. The abdominal segments have a band of hair-bearing, semi-areola shaped punctures. The large tarsal claws on the anterior and middle legs are cleft.

In the male the larger anterior tarsal claw is larger than in the female.

Length, 12.3 to 16.0 mm.; breadth, 6.5 to 9.0 mm.

Type.—♂; Lasmercedes, Santa Clara, COSTA RICA. December 21 (F. Nevermann). In the collection of the United States National Museum, number 58770.

Allotype.—♀; Verres, Costa Rica (A. Alfaro). In the collection of the Academy of Natural Science, Philadelphia.

Paratypes.—1♂ with the same data as the type. 1♂; Hamburg Farm, Reventazon, Ebene Limon, Costa Rica. May 24 (F. Nevermann). 1♀ with the same data as the Allotype. 1♀; Costa Rica (F. Nevermann).

Paratypes are in the collections of the United States National Museum, of The Academy of Natural Science, Philadelphia, and of the author.

A New Species of the Genus Tachytes from Michigan (Hymenoptera: Larridae)

By R. R. DREISBACH, Midland, Michigan

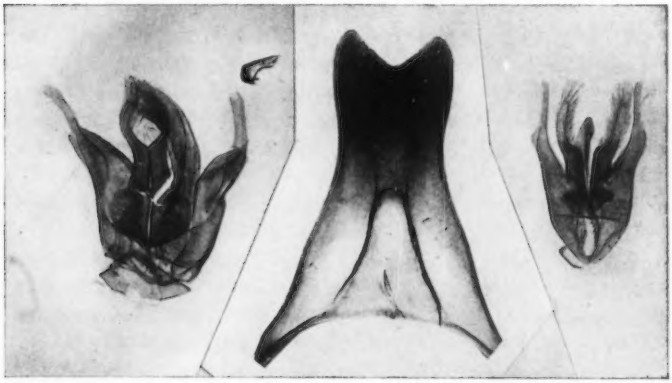
In comparing a number of species of this family with the types at the Museum of Comparative Zoology at Cambridge, the species in question appeared to be new and is herewith described.

Tachytes quadrifasciatus n. sp.

Holotype male: Color, black with the following exceptions: mandibles, from base to the emargination, labial and maxillary palpi (except basal joint of each which is black), sockets and

basal joint of antennae in front, tegulae, the tips of all the femora, the apical half of fore femur on front and about one-third of apical part of middle femur on anterior edge, all the tibiae and tarsi, golden yellow; the very large pulvillae of claws, much darker; tips of mandibles beyond notch, dark red. The head, thorax, first abdominal tergite, and first and second ventral segments covered with long, white hair, a few long hairs on lateral sides of tergites 3, 4 and 5 with those of the 5th extending across tergite, the 6th covered with long, mostly appressed, hair; front, face and clypeus with very heavy, white silvery, appressed pubescence from anterior ocellus forward; the last dorsal segment covered with similar white, appressed, silvery pubescence; tergites 1–4 with an apical fascia of white appressed hairs, slightly less than one-third the width of tergite, ventral segments 2 and 3 also with apical fascia but much less evident than those on tergites; ventral segment 2 with a few long hairs on apical edge across the whole width, an indication of a hair band on central part which covers a little less than one-half the width; the ventral segments 3–6 with short, heavy hair tufts, the 3rd slightly more than one-fourth length of segment, the 4th slightly less than one-half, the 5th about three quarters of length, and that on the 6th covers the whole visible portion when the segments are in normal position, but when it is extended, the hair band covers a little more than one-third of length; the fact that the hair band covers the whole of the 6th segment in the normal position gives the appearance of only three hair bands or tufts instead of the actual four; antennae short and with basal joints (3–5) rounded at base, third joint slightly longer than the fourth; a depression just behind lateral ocelli and a deep sulcus extending from this depression to just back of a line joining the posterior edges of eyes; propodeum granular with a deep sulcus extending from postscutellum to posterior edge of dorsal surface where it meets an elevated knob, a deep depression just behind this knob and a prominent sulcus reaching from this depression to near apex of propodeum; three transverse ridges in groove just behind postscutellum; wings hyaline, but slightly yellowish all over; last ventral segment with a deep notch and with a few long hairs

apically. Length, head and thorax 6.6 mm., abdomen 6.6 mm., fore wing 8.2 mm., rear wing 5.3 mm. Genitalia, width at middle of base .93 mm., length 1.6 mm. Last ventral segment, width 1.0 mm., length 1.33 mm.



1 2 3

FIG. 1. *Tachytes validus* Banks. Paratype, ventral view, × 16.
FIG. 2. *Tachytes quadrifasciatus*, dorsal view, last ventral segment, × 38.
FIG. 3. *Tachytes quadrifasciatus* n. sp., ventral view, × 16.

Holotype male—Livingston Co., MICHIGAN. E. S. George Reserve, IX–2–40, George Steyskal. At present in the collection of the writer but will be deposited in the Museum of Comparative Zoology at Harvard College. This species belongs in the subgenus Tachyplena of Banks [1] and runs to first part of couplet 8 in his key to the genus in the males. This keys it with *T. validus* (Cr.) but it can easily be separated on the basis of the four hair bands instead of the one of *validus*, and further by the fact that the first three segments of the flagellum are slightly excavated at the base while in *validus* they are cylindrical and not at all excavated.

[1] BANKS, NATHAN. Bull. Mus. Comp. Zool., Harvard College, LXXXIX, No. 9, 1942, pp. 395–435.

Replacement of Two Preoccupied Names of Tetrigidae (Orthoptera: Acridoidea)

By JAMES A. G. REHN, Academy of Natural Sciences of Philadelphia

In a series of papers published within the last ten years Dr. Klaus Günther presented the first three portions [1] of a revision of the grouse-locusts, this group being referred to by him as the Acrydiinae, but which is now considered by most students to represent a valid family of the Acridoidea, for which the name Tetrigidae is used.

In these studies Günther has erected thirty new generic names, eleven of which contain from six to eight syllables. Six have six syllables, four have seven, and one (*Platygavialidium*) has eight. Dr. Jacobus Faure has recently protested [2] against the creation of overly-long generic names, and his comments deserve sympathetic consideration. Too frequently authors utilize the handiest "out," and merely add a prefix or suffix to an existing generic name, usually of a related genus, though occasionally of one in no way closely related to their new entity, but to which the latter has some superficial resemblance. When the previously established name is lengthy, the results are often far from happy, and our already overburdened taxonomic literature is further cluttered up with multisyllabic terms. The increas-

[1] "Revision der Acrydiinae, I. Sectiones Tripetalocerae, Discotettigiae, Lophotettigiae, Cleostratae, Bufonidae, Cladonotae, Scelimenae verae." Mitt. Zool. Mus. Berlin, XXIII, heft 2, pp. 299–437. November 15, 1938.

"Revision der Acrydiinae (Orth.), II. Scelimenae spuriae." Stett. Ent. Zeit., 99, heft II, pp. 117–148, 161–230. June 15, 1938 (pp. 117–148) and December 20, 1938 (pp. 161–230).

"Revision der Acrydiinae (Orthoptera), III. Sectio Amorphopi (Metrodorae Bol. 1887, aut.)." Abhandl. und Berichte Staatlichen Museum Tierk. und Völkerk., Dresden, 20, Reihe A: Zool., Neue Folge, Bd. I, heft I, pp. 16–335. December, 1939.

[2] "A Plea for Brevity—and Sanity—in Zoological Nomenclature." Journ. Entom. Soc. So. Africa, IX, pp. 39–44 (1946); Ann. and Mag. Nat. Hist., (11) XIII, pp. 595–601 (1946).

ing difficulty of locating available generic names is fully realized by all who are acquainted with systematics, but a moderate amount of effort usually produces an available name of reasonable length.

Unfortunately Dr. Günther does not seem to have made a search to determine possible preoccupation of some of his new generic names, as two which he has proposed were employed long prior to his work, and both of these are properly listed in Neave's Nomenclator Zoologicus, and Waterhouse's Index Zoologicus, 1880–1900. If the former was not available at the time Dr. Günther wrote, the latter certainly was, and the same degree of checking employed by most systematists would have prevented his use of preoccupied names.

The two names referred to are *Thymoites* (Günther, 1939, pp. 26, 224) and *Barytettix* (Günther, 1939, p. 317). The first was properly used for an arachnid genus by Keyserling (Die Spinnen Amerikas, Theridiidae, häfte 1, bd. 2, p. 161) in 1884, while *Barytettix* was employed in 1897 for an orthopterous genus by Scudder (Proc. Amer. Acad. Arts and Sci., XXXII, pp. 197, 204; Proc. U. S. Nat. Mus., XX, pp. 10, 27). To replace *Thymoites* Günther, 1939, not of Keyserling, 1884, I here propose *Moluccasia,* the sole species placed in the genus by Günther (*buruanus*) being from the island of Buru, in the Moluccas. In place of *Barytettix* Günther, 1939, not of Scudder, 1897, I propose *Marshallacris,* in honor of Sir Guy A. K. Marshall, the distinguished British entomologist, who collected the type specimen of the genotypic species (*africanus* Hancock) in the course of his extensive African entomological explorations.

Notes on Some Carnivorous Mosquito Larvae

By Osmond P. Breland, The University of Texas

The writer has been studying the biology and immature stages of the tree hole breeding mosquito, *Megarhinus septentrionalis* Dyar & Knab, for several years. It is well known that the larvae of this species are carnivorous, and that they feed upon the larvae of other mosquitoes with which they are associated. During some phases of a study of this species, sufficient mosquitoe larvae for rearing the *Megarhinus* could not be obtained, and consequently, larval and adult fruit flies or *Drosophila* were used as substitute food. It was found that the mosquito larvae would eat both larval and adult *Drosophila,* and that the late instars of the mosquito were more definitely attracted to adult fruit flies on the water surface than they were to the larvae of other mosquitoes. The food problem was thus solved for this particular species. The feeding process of the *Megarhinus* larvae was observed under a dissecting microscope, and the modified mouth brushes were never seen to be used, although it is commonly stated that these structures are employed for seizing and holding the prey. The mandibles alone were used in all cases observed. A detailed report of this and related work was made recently at a meeting of the American Entomological Society.

On May 13, 1948, three days after a heavy rain, the writer and his associates collected approximately 100 second and third instar larvae of two other carnivorous species, *Psorophora howardii* Coq. and *P. ciliata* (Fab.). The mosquitoes were found in several temporary pools in the vicinity of Luling, Texas. Very few larvae of other species were available, and consequently, larval and adult fruit flies were tried as substitute food. Both species of larvae totally disregarded the fruit flies. In the absence of other acceptable food, some of the carnivorous larvae ate their fellows, and as a result, only 11 adults were reared from the rather large number of larvae. These observations indicate that the rearing of large series of *P. howardii* and *P. ciliata*

will be difficult in the absence of other mosquito larvae, but that if fruit flies are available, large numbers of *M. septentrionalis* may be reared without the use of mosquito larvae.

It was noted above that the writer has never seen larvae of *M. septentrionalis* make use of the mouth brushes for seizing the prey or for feeding. Direct observations under a dissecting microscope, however, have confirmed that larvae of *P. howardii* do use the brushes to some extent. The brushes aid the mandibles in catching the prey and in holding it for a time. As the struggles of the victim subside, the mouth brushes are folded against the sides of the head, and most of the actual eating process is accomplished by the mandibles alone. No satisfactory observations of this type have been made by the writer for *P. ciliata,* although other workers state that this species does use the mouth brushes.

Psorophora howardii is considered to be rare in some regions, and has previously been thought of as being rare in Texas. These collections indicate that after heavy rains young instar larvae of the species may be quite common in some areas. As indicated above, approximately 100 larvae were collected, and at least this many more could have been obtained with additional effort. A day or so later the number available would probably have been radically reduced because of cannibalism. The larvae of *P. ciliata* and *P. howardii* are very similar and difficult to distinguish while still alive. Consequently, no attempt was made to determine the exact number of each species represented in these collections. However, indications are that most of the specimens were *P. howardii.* Ten fourth instar larvae were selected at random and mounted on slides, and of this number 9 are *P. howardii.* Of the 11 adult specimens that emerged, 8 are *P. howardii* and only 3 are *P. ciliata.*

Current Entomological Literature

COMPILED BY RAYMOND Q. BLISS AND THEODORE M. TELSCH.

Under the above head it is intended to note papers received at the Academy of Natural Sciences of Philadelphia and the University of Pennsylvania, pertaining to the Entomology of the Americas (North and South), included Arachnida and Myriopoda. Articles irrelevant to American entomology will not be noted; but contributions to anatomy, physiology and embryology of insects, however, whether relating to American or exotic species will be recorded.

This list gives references of the year 1948 unless otherwise noted. Continued papers, with few exceptions, are recorded only at their first installment.

For records of Economic Literature, see the Experiment Station Record Office of Experiment Stations, Washington. Also Review of Applied Entomology, Series A, London. For records of papers on Medical Entomology, see Review of Applied Entomology, Series B.

NOTE: The figures within brackets [ ] refer to the journal in which the paper appeared, as numbered in the List of periodicals and serials published in our January and June issues. The number of the volume, and in some cases, the part, heft, &c. is followed by a colon (:). References to papers containing new forms or names not so stated in titles are followed by (*); if containing keys are followed by (k); papers pertaining exclusively to Neotropical species, and not so indicated in the title, have the symbol (S).

Papers published in ENTOMOLOGICAL NEWS are not listed.

GENERAL—Bibliography of Agriculture, U. S. Dept. Agric. 12 (7) Entomological items no. 39447–40047, July 1948. **Beier, M.**—Phoresie und Phagophilie bei Pseudoscorpionen. [Österr. Zool. Zeitschr.] 1: 441–97. **Castellarnau, S. de**—Bionomía de los insectos zoófagos y xilófagos de museos, herbarios y bibliotecas. [Bol. Real Soc. Esp. de Hist. Nat.) 40: 361–90, ill., 1942. **Fairchild and Hertig**—An improved method for mounting small insects. [80] 108: 20. **Franz und Leitenberger—Biologischchemische Untersuchungen** über Humusbildung durch Bodentiere. [Österr. Zool. Zeitschr.] 1: 498–518. **Frings, H.**—Rearing houseflies and blowflies on dog biscuit. [80] 107: 629–30. **Heal, R. E.**—Rearing methods for German and American cockroaches. [37] 41: 329–30. **Laird, M.**—A method of securing living mosquitoes to mounts in studies of problems concerning flight. [80] 107: 656. **Marcus, H.**—De la evolucion de los organos respiratorios en los insectos holometabolicos. [Folia Universitaria, Cochabamba] 1: 83–96.—Los estados biologicos. *Ibid.*: 45–65, ill. **Martin, A., Jr.**—An introduction to the genetics of Habrobracon juglandis (Ashmead). xii + 205 pp. $3.50. The Hobson Book Press, New York, 1947. (Review: in Jour. Heredity 39: 116). **Martini, E.**—Lehrbuch der medizinischen Entomologie. 3rd rev. ed. Jena, 1946. Review in Biol. Zentralbl. 67: 211. **Pence, R. J.**—A simple attachment to increase depth of focus of microscope objectives for photomicrography. [80] 107:

631–32. **Schilder, F. A.**—Methoden und Probleme der Biostatistik. IV. [Biol. Zentralbl.] 67: 189–201. **Scott, A. J.**—An apparatus for removing tropical rat mites from large quantities of bedding materials. [46] 34: 132–33. **Stoll, N. R.**—In Memoriam: Rudolf W. Glasser (1888–1947). [46] 34: 165–68. **Torre-Bueno, J. R. de la**—Totalitarianism in science. [18] 43: 99–100. **Usinger, R. L.**—An all-purpose insect net made of nylon. [18] 43: 67–68.

ANATOMY, PHYSIOLOGY, MEDICAL—Anderson, J. M.—Changes in the distribution of nitrogen in the japanese beetle (Popillia japonica) during metamorphosis. [Physiol. Zool.] 21: 237–52. **Barber, G. W.**—The lethal lines of the house fly. [37] 41: 292–95. **Dethier and Chadwick**—Chemoreception in insects. [Physiological Reviews] 28: 220–54. **Fisher and Ford**—The spread of a gene in natural conditions in a colony of the moth Panaxia dominula. [Heredity] 1: 143–74, 1947. **Fring, Allen and Rudnick**—The physical effects of high intensity air-borne ultrasonic waves on animals. [105] 31: 339–58. **Gaul, A. T.**—Additions to vespine biology—V: The distribution of labor in the colonies of hornets and yellowjackets. [18] 43: 73–79. **Goldschmidt, R. B.**—New facts on sex determination in Drosophila melanogaster. [67] 34: 245–52. **Harvey, Anderson, Buck, Chase, Eyring and Johnson**—Bioluminescence. [Ann. New York Acad. Sci.] 49: 327–482. **Heller, J., A. Mokłowska-Heller i w. Swiechowska**—Bivoltinism and genetics (Sphingid.). [Biull. Ent. de la Pologne] 18: 81–94. **Heuts, M. J.**—Adaptive properties of carriers of certain gene arrangements in Drosophila pseudoobscura. [Heredity] 2: 63–75. **Kaplan, W. D.**—Formaldehyde as a mutagen in Drosophila. [80] 108: 43. **King, J. E.**—A study of the reproductive organs of the common marine shrimp, Penaeus setiferus. [12] 94: 244–62. **Koller, G.**—Rhythmische Bewegung und hormonale Steuerung bei den Malpighischen Gefässen der Insekten. [Biol. Zentralbl.] 67: 201–11. **Leech, H. B.**—Acetic acid odor from Stenolophus fidelis. [23] 79: 141, 1947. **Logothetis, C.**—Biological studies on the horse flies of New York. [37] 41: 335–36. **Ludwig, D.**—Relation between lipid content of cuticle, duration of diapause, and resistance to desiccation of pupae of the cynthia moth. [Physiol. Zool.] 21: 252–57. **Marcus, H.**—Un organo estridulacion en hormigas y termitas. [Folia Universitaria Cochabamba] 1: 39–44, ill.—Estruc-

turas singulares de Dinjapyx marcusi. *Ibid.:* 66–72, ill.—La embriogenesis de Aethalion, termitas y hormigas con una comparacion de la anatomia de los insectos y vertebrados. *Ibid.:* 97–118. **Matthey, R.**—Données nouvelles sur la chromosomes des Tettigonides et la parthénogénèse de Saga pedo. [Rev. Suisse de Zool.] 55: 45–56, ill. **Mendes, M. V.**—Histology of the corpora allata of Melanoplus differentialis. [12] 94: 194–207. **Menusan, H.**—Comparative toxicity of insecticides administered in various ways to several species of insects. [37] 41: 302–13. **Mittler, S.**—Influence of genetic environment on the reduction of bristles by the dichaete gene in Drosophila melanogaster. [12] 94: 208–11. **Morley, D. W.**—Neurotic behavior in ants. [53] 162: 74–75. **Moscona, A.**—Utilization of mineral constituents of the egg-shell by the developing embryo of the stick insect. [53] 162: 62–63. **Mosna, E.**—Culex pipiens autogenicus DDT-resistenti e loro controllo con octa-klor e esaclorocicloesano. [Riv. di Parassit.] 9: 19–25. **Nájera, L.**—Sobre un caso de oftalmomiasis producida por larvas de Wohlfahrtia magnifica. [Bol. Real. Soc. Esp. de Nat. Hist.] 40: 493–95, ill., 1942.—La distribución geográfica de las especies de pulgas de interés epidemiológico (Siphonaptera). *Ibid.:* 497–502, 1942. **Pätau, K.**—X-segregation and heterochromasy in the spider Araner reaumuri. [Heredity] 2: 77–100. **Pearson, J. C.**—Fluctuations in the abundance of the blue crab in Chesapeake Bay. [Research Report 14, Fish and Wildlife Service, U. S. Dept. Interior.] **Reed, S. C. and E. W.**—Natural selection in laboratory populations of Drosophila. [100] 2: 176–86. **Ribeiro, B. L.**—Contribuição para o conhecimento da bionomia de Rothschildia aurota (Saturn.). [111] 8: 127–41. **Richards and Korda**—Studies on arthropod cuticle. II. Electron microscope studies of extracted cuticle. [12] 94: 212–35. **Ricks and Hoskins**—Toxicity and permeability. II. The entrance of arsenic into larvae of the flesh fly, Sarcophaga securifera. [Physiol. Zool.] 21: 258–72. **Roeder, K. D.**—The effect of potassium and calcium on the nervous system of the cockroach, Periplaneta americana. [105] 31: 327–38. **Sacktor, Hutchinson and Granett**—Biology of the lone star tick in the laboratory. [37] 41: 296–301. **Sequy, E.**—Introduction à l'étude des myiases. [111] 8: 93–111. **Schneirla, T. C.**—Army-ant life and behavior under dry-season conditions with special reference to reproductive functions. II. The appearance and fate of the males. [93] 33: 89-112, ill.

(s). **Smith and Lowe**—The black gnats of California (Ceratopogon.). [Hilgardia] 18: 157–83. **Streisinger, G.**—Experiments on sexual isolation in Drosophila. IX. Behavior of males with etherized females. [100] 2: 187–88. **Tuxen, S. L.**—En paedogenetisk cecidomyidelarve i Finland. [Memoranda Societatis pro Fauna et Flora Fennica] 23: 138–41, 1947. **Verolini, F.**—Sul meccanismo di azione del DDT sulle larve di culicine. [Riv. di Parassit.] 9: 31–37. **Waloff, N.**—Development of Ephestia elutella (Phycit.) on some natural foods. [19] 39: 117–30. **Way and Synge**—The effects of DDT and benzene hexachloride on bees. [4] 35: 94–109. **Weinstein and Pratt**—The laboratory infection of Triatoma neotomae with Trypanosoma cruzi and subsequent transmission to white mice. [46] 34: 231–36. **Whiting, P. W.**—Leg-like antennae in Habrobracon. [42] 39: 153–54.

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SMALLER ORDERS—Calvert, P. P.—Odonata of Kartabo, Bartica District, British Guiana. [95] 33: 47–87, ill. (*). **Marcus, H.**—Termites; also Thysanura. (See under Anatomy and General.) **Najera, L.**—Siphonaptera. (See under Anatomy.) **Ross, H. H.**—New species of sericostomatoid Trichoptera. [65] 50: 151–57 (k). **Thompson, G. B.**—Mallophaga collected by the Tanager expedition. [Occas. Papers, Bishop Mus., Honolulu] 19: 195–200, ill. **Wray, D. L.**—Some new species and varieties of Collembola from North Carolina. [18] 43: 44–53.

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of its species-groups (Tenebrio.). [19] 39: 13–55 (k*). **Kerr, T. W., Jr.**—A Phyllobius species, a new pest and its control on arborvitae (Rhyncoph.). [37] 41: 331. **Knull, J. N.**—New genus and species of Cerambycidae with notes. [58] 48: 82–83. **Leech, H. B.**—(See under Anatomy and Diptera.) **McKey-Fender, D.**—Distribution in certain Lucanidae. [Coleopt. Bulletin] 2: 43–44. **Pardo Alcaide, A.**—Observaciones sobre la ninfosis de Helops magnificus (Tenebr.). [Bol. Real Soc. Esp. de Hist. Nat.] 40: 503–06, ill., 1942. **Paulian, R.**—Why and wherefore of French Coleopterology. [Coleopt. Bulletin] 2: 41–42. **Ray, E.**—Three new Mordellid beetles from the Pacific. [Occas. Papers, Bishop Mus., Honolulu] 19: 167–70, ill. **Schilder, F. A.**—(See under General.) **Steel, W. O.**—Notes on Staphylinidae from Solomon Islands, with description of a new subgenus. [Occas. Papers, Bishop Mus., Honolulu] 19: 187–89. **Walkley, L. M.**—Notes on nomenclature in the Lathridiini. [65] 50: 149–50. **Zischka, R.**—Catalogo de los insectos de Bolivia. I. Rhopalocera. [Folia Universitaria, Cochabamba, Bolivia] 1: 27–36.—II. Scarabaedoidea. *Ibid.:* 36–38.

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2. American Museum Novitates. New York, N. Y.
3. American Naturalist. Garrison-on-Hudson, New York.
4. Annals of Applied Biology. London.
5. Annals of the Entomological Society of America. Columbus, Ohio.
6. Annals and Magazine of Natural History. London.
7. Annales Academia Brasileira Sciencias. Rio de Janeiro.
8. Anales del Instituto de Biologia Mexico. Mexico City.
9. Anatomical Record. Philadelphia.
10. Arkiv för Zoologie. K. Svenska Vetenkapsakademien i. Stockholm.
11. Arquivos de Higiene e Saude Publica. São Paulo.
12. Biological Bulletin. Woods Hole, Massachusetts.
13. Bios, Rivista Biol. Geneva.
14. Boletin de Entomologia Venezolana. Caracas.
15. Boletin del Museo de Historia Natural "Javier Prado." Lima, Peru.
16. Boletin do Museu Nacional do Rio de Janeiro. Brasil.
17. Bull. Acad. Sci. (Izvestia Akad. nauk) U S S R (S. biol.).
18. Bulletin of the Brooklyn Entomological Society. New York.
19. Bulletin of Entomological Research. London.
20. Bulletin of the Museum of Comparative Zoology. Cambridge, Mass.
21. Bulletin of the Southern California Acad. of Sciences. Los Angeles.
22. C. r. Acad. Sci. (Doklady Akad. nauk) U S S R. Leningrad.
23. Canadian Entomologist. Guelph, Canada.
24. Canadian Journal of Research. Ottawa, Canada.
25. Ecological Monographs. Durham, North Carolina.
26. Ecology. Durham, North Carolina.
27. Entomologica Americana. Brooklyn Ent. Society, New York.
28. Entomological Monthly Magazine. London.
29. Entomological Record and Journal of Variations. London.
30. The Entomologist. London.
31. Florida Entomologist. Gainesville, Florida.
32. Frontiers. Philadelphia, Pennsylvania.
33. Great Basin Naturalist. Provo, Utah.
34. Iowa State College Journal of Science. Ames, Iowa.
35. Journal of Agricultural Research. Washington, D. C.
36. Journal of Animal Ecology. London.
37. Journal of Economic Entomology. Geneva, New York.
38. Journal of the Elisha Mitchell Science Society. Chapel Hill, N. C.
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49. Memorias do Instituto Oswaldo Cruz. Rio de Janeiro.
50. Microentomology. Stanford University, California.
51. The Microscope and Entomological Monthly. London.
52. Mosquito News. Albany, New York.
53. Nature. London.
54. Nature. Washington, D. C.
55. La Naturaliste Canadien. Quebec.

56. Natural History. New York.
57. Occasional Papers, Mus. of Zool., Univ. of Michigan. Ann Arbor.
58. Ohio Journal of Science. Columbus, Ohio.
59. Opinions and Declarations. Intern. Com. Zool. Nomencl. London.
60. Pan-Pacific Entomologist. San Francisco, California.
61. Parasitology. London.
62. Proceedings of the Academy of Natural Sciences. Philadelphia.
63. Proceedings of the Biological Society of Washington. Washington, D. C.
64. Proceedings of the California Academy of Science. San Francisco.
65. Proceedings of the Entom. Soc. of Washington. Washington, D. C.
66. Proceedings of the Hawaiian Entomological Society. Honolulu.
67. Proceeding of the National Acad. of Sciences. Washington, D. C.
68. Proceedings of the Royal Entomological Society of London. Ser. A.
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70. Proceedings of the Royal Entomological Society of London. Ser. C.
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87. Transactions of the Royal Canadian Institute. Toronto.
88. Transactions of the Royal Entomological Society. London.
89. U. S. Dept. of Agric., Farmer's Bulletins. Washington, D. C.
90. U. S. Dept. of Agric., Technical Bulletins. Washington, D. C.
91. University of California Publications in Entomology. Berkeley.
92. University of California Publications in Zoology. Berkeley.
93. University of Kansas, Science Bulletins. Lawrence, Kansas.
94. Ward's Natural Science Bulletin. Rochester, New York.
95. Zoologica. New York.
96. American Journal of Public Health. Boston.
97. American Journal of Tropical Medicine. Baltimore.
98. Annals of Tropical Medicine and Parasitology. Liverpool.
99. Canadian Journal of Research. Section E, Medical Sciences, Ottawa.
100. Evolution. New York.
101. Mitteilungen der schweitzerischen entomologischen Gesellschaft, Bern.
102. Revue de Entomologie. Rio de Janeiro, Brasil.
103. Proceedings of the Royal Society of London.
104. Anales de la Escuela Nacional de Ciencias Biologicas. Mexico.
105. Journal of Cellular and Comparative Physiology. Philadelphia.
106. Redia. Florence, Italy.
107. Annales de la Société Entomologique de France. Paris.
108. Bulletin de la Société Entomologique de France. Paris.
109. Notulae Naturae. Philadelphia.
110. L'Entomologiste. Paris.
111. Revista Brasiliera de Biologie. Rio de Janeiro.
112. Eos, Revista Española de Entomologia. Madrid.
113. Minist. de Agri. de la Nación, Inst. Sanidad Vegetal, Buenos Aires.

Review

A Textbook of Agricultural Entomology. By Kenneth M. Smith. D.Sc., Ph.D., F.R.S., Director, Plant Virus Research Station, Cambridge, at the University Press; New York, The Macmillan Company. Pp. xiii, 289, frontispiece plus 84 figs.—Price: $4.50.

The first edition was published in 1931 (Ent. News 43: 221). In this revision, numerous details have been brought up to date, the newer insecticides included, and the chapter on virus transmission rewritten. Compared with its American counterparts, one striking difference is that in this book the insects are taken up order after order in their usual taxonomic sequence rather than under their host plants. This more entomological approach may be worth considering; it should tend, for example, to place greater emphasis on a thorough understanding of the insects themselves—a point of view that might be, in the long run, more fruitful—than on mere recognition and the directions for control. Another difference is, of course, the entire absence of some of our own prominent pests such as the potato beetle, corn insects, etc., and the inclusion of some that are of little importance in America, such as the springtail (found on mangolds and other root crops) that adorns the jacket of the book, and the tipulid larvae or "leatherjackets" in pastures and on root crops. Finally, this sentence, from page six, will illustrate a difference in control practice: "The use of insecticides in the agricultural practice of the British Isles is very limited and is governed largely by the question of price, the profit on the average farm crop, especially at the present time, allowing small margin for expenditure on insecticides."—R. G. SCHMIEDER.

A New Biological Journal

The first number of the Australian Journal of Scientific Research, Series B (Biological Sciences) has been recently issued by the Council of Scientific and Industrial Research with the approval and cooperation of the Australian National Research Council. Dr. N. S. Noble, D. Sci. Sgr. is the editor and this first number contains an article on the color preferences of the housefly by D. F. Waterhouse.

EXCHANGES

This column is intended only for wants and exchanges, not for advertisements of goods for sale or services rendered. Notices not exceeding three lines free to subscribers.

These notices are continued as long as our limited space will allow; the new ones are added at the end of the column, and, only when necessary those at the top (being longest in) are discontinued.

Diptera—Tachinidae-Dexiidae wanted, No. Amer. and exotic. Will collect most orders in exchange or will purchase. P. H. Arnaud, 60 Woodrow St., Redwood City, Calif.

Will collect—Zoological and entomological specimens in tropical and subtropical parts of Peru. Jose M. Schunke, Pucallpa, Peru.

Wanted—Diplotaxis; will buy or exchange. E. W. Mange, 307 W. Walnut St., Hanover, Pa.

Hymenoptera-Aculeata (except ants and bees) for exchange. Will collect other orders in exchange. N. F. de Andrade, Casal Novo, S. João do Estoril, Portugal.

Meliponidae—Wanted, information on the bionomics, culture, and economic importance of the stingless bees, particularly of the Old World. P. Nogueira Neto, Av Cicade Jardim 170, S. Paulo, Brasil.

Wasps (Vespoidea, Sphecoidea, Chrysidoidea) of the world by exchange or purchase. Will collect other orders in exchange. D. G. Shappirio, 4811 17th St., N.W., Washington 11, D. C.

Lepidoptera—Large quantities of Plexippus, Colias, Cardui, Vanillae wanted for cash or exchange for tropical butterflies. G. MacBean, 710 Miller Rd., Sea Island, Vancouver, B. C.

Ants of the tribe Dacetini (*Strumigenys, Rhopalothrix* and related genera) wanted for world revision. W. L. Brown, Jr., Harvard University Biological Laboratories, Cambridge 38, Mass.

Mallophaga (on which immediate determination is not necessary) wanted for study and determination. R. L. Edwards, Dept. Biology, Harvard University, Cambridge 38, Mass.

Tingidae (Heteroptera) of the world wanted, in alcohol, with host and other ecological data. Will collect other orders in exchange. N. S. Bailey, 16 Neponset Ave., Hyde Park 36, Mass.

Bombidae, nearctic and neotropical, wanted for exchange, identification, or purchase. Will exchange in other groups for bumblebees. Barth Maina, Dept. Zool., Univ. of Chicago, Chicago 37, Ill.

Saturnidae of the world. Will purchase individual specimens or cocoons. F. E. Rutkowski, St. Bede College, Peru, Illinois, U. S. A.

Butterflies of New England, principally from New Haven, Conn., for exchange. Louis Clarke, 28 W. Elm St., New Haven 15, Conn.

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